

Release notes for ENDF/B Development n-018_Ar_038
evaluation

ENDF
B-VII.dev

April 26, 2017

• psyche Warnings:

1. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ISOTOPE MASS = 38. L = 0 / STRENGTH FUNCTION IS 1.27373E+01 / STRENGTH FUNCTION 1.27373E+01 / LIES OUTSIDE LIMITS 1.00000E-04 TO 9.00000E-04 (0): URR str. ftn.

```
FILE 2
SECTION 151
ISOTOPE MASS = 38. L = 0
STRENGTH FUNCTION IS 1.27373E+01
STRENGTH FUNCTION 1.27373E+01
... [1 more lines]
```

2. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 9.09999E-05 / STRENGTH FUNCTION 9.09999E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 9.00000E-04 (0): URR str. ftn.

```
FILE 2
SECTION 151
ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 9.09999E-05
STRENGTH FUNCTION 9.09999E-05
LIES OUTSIDE LIMITS 1.00000E-04 TO 9.00000E-04
... [8 more lines]
```

3. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 3.29999E-05 / ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 3.29999E-05 / DENSITY 8.17035E+04 SHOULD BE 6.98550E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 3.29999E-05
ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 3.29999E-05
DENSITY 8.17035E+04 SHOULD BE 6.98550E+04
```

4. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 4.00000E+05. STRENGTH FUNCTION IS 3.29999E-05 / DENSITY 8.17035E+04 SHOULD BE 6.98550E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 4.00000E+05. STRENGTH FUNCTION IS 3.29999E-05
DENSITY 8.17035E+04 SHOULD BE 6.98550E+04
```

5. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 5.00000E+05. STRENGTH FUNCTION IS 3.29999E-05 / DENSITY 8.17035E+04 SHOULD BE 6.98550E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 5.00000E+05. STRENGTH FUNCTION IS 3.29999E-05
DENSITY 8.17035E+04 SHOULD BE 6.98550E+04
```

6. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 6.00000E+05. STRENGTH FUNCTION IS 3.29999E-05 / DENSITY 8.17035E+04 SHOULD BE 6.98550E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 6.00000E+05. STRENGTH FUNCTION IS 3.29999E-05
DENSITY 8.17035E+04 SHOULD BE 6.98550E+04
```

7. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 7.00000E+05. STRENGTH FUNCTION IS 3.29999E-05 / DENSITY 8.17035E+04 SHOULD BE 6.98550E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 7.00000E+05. STRENGTH FUNCTION IS 3.29999E-05
DENSITY 8.17035E+04 SHOULD BE 6.98550E+04
```

8. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 8.00000E+05. STRENGTH FUNCTION IS 3.29999E-05 / DENSITY 8.17035E+04 SHOULD BE 6.98550E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 8.00000E+05. STRENGTH FUNCTION IS 3.29999E-05
DENSITY 8.17035E+04 SHOULD BE 6.98550E+04
```

9. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 9.00000E+05. STRENGTH FUNCTION IS 3.29999E-05 / DENSITY 8.17035E+04 SHOULD BE 6.98550E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 9.00000E+05. STRENGTH FUNCTION IS 3.29999E-05
DENSITY 8.17035E+04 SHOULD BE 6.98550E+04
```

10. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.00000E+06. STRENGTH FUNCTION IS 3.29999E-05 / DENSITY 8.17035E+04 SHOULD BE 6.98550E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 1.00000E+06. STRENGTH FUNCTION IS 3.29999E-05
DENSITY 8.17035E+04 SHOULD BE 6.98550E+04
```

11. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.20000E+06. STRENGTH FUNCTION IS 3.29999E-05 / DENSITY 8.17035E+04 SHOULD BE 6.98550E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 1.20000E+06. STRENGTH FUNCTION IS 3.29999E-05
DENSITY 8.17035E+04 SHOULD BE 6.98550E+04
```

12. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 1.89999E-04 / ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 1.89999E-04 / DENSITY 7.07218E+04 SHOULD BE 5.44690E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 1.89999E-04
ENERGY = 3.00000E+05. STRENGTH FUNCTION IS 1.89999E-04
DENSITY 7.07218E+04 SHOULD BE 5.44690E+04
```

13. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 4.00000E+05. STRENGTH FUNCTION IS 1.89999E-04 / DENSITY 7.07218E+04 SHOULD BE 5.44690E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 4.00000E+05. STRENGTH FUNCTION IS 1.89999E-04
DENSITY 7.07218E+04 SHOULD BE 5.44690E+04
```

14. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 5.00000E+05. STRENGTH FUNCTION IS 1.89999E-04 / DENSITY 7.07218E+04 SHOULD BE 5.44690E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 5.00000E+05. STRENGTH FUNCTION IS 1.89999E-04
DENSITY 7.07218E+04 SHOULD BE 5.44690E+04
```

15. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 6.00000E+05. STRENGTH FUNCTION IS 1.89999E-04 / DENSITY 7.07218E+04 SHOULD BE 5.44690E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 6.00000E+05. STRENGTH FUNCTION IS 1.89999E-04
DENSITY 7.07218E+04 SHOULD BE 5.44690E+04
```

16. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 7.00000E+05. STRENGTH FUNCTION IS 1.89999E-04 / DENSITY 7.07218E+04 SHOULD BE 5.44690E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 7.00000E+05. STRENGTH FUNCTION IS 1.89999E-04
DENSITY 7.07218E+04 SHOULD BE 5.44690E+04
```

17. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 8.00000E+05. STRENGTH FUNCTION IS 1.89999E-04 / DENSITY 7.07218E+04 SHOULD BE 5.44690E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 8.00000E+05. STRENGTH FUNCTION IS 1.89999E-04
DENSITY 7.07218E+04 SHOULD BE 5.44690E+04
```

18. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 9.00000E+05. STRENGTH FUNCTION IS 1.89999E-04 / DENSITY 7.07218E+04 SHOULD BE 5.44690E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 9.00000E+05. STRENGTH FUNCTION IS 1.89999E-04
DENSITY 7.07218E+04 SHOULD BE 5.44690E+04
```

19. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.00000E+06. STRENGTH FUNCTION IS 1.89999E-04 / DENSITY 7.07218E+04 SHOULD BE 5.44690E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 1.00000E+06. STRENGTH FUNCTION IS 1.89999E-04
DENSITY 7.07218E+04 SHOULD BE 5.44690E+04
```

20. Level density in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.20000E+06. STRENGTH FUNCTION IS 1.89999E-04 / DENSITY 7.07218E+04 SHOULD BE 5.44690E+04 (0): URR dens. (a)

```
FILE 2
SECTION 151
ENERGY = 1.20000E+06. STRENGTH FUNCTION IS 1.89999E-04
DENSITY 7.07218E+04 SHOULD BE 5.44690E+04
```

- linear Errors:

1. Negative cross section found
0: Neg. Sig(E)

```
Linearize ENDF/B Cross Sections (LINEAR 2015-1)
-----
Retrieval Criteria----- MAT
Monitor Mode----- Off
Minimum Cross Section----- 1.0000E-10 (Default Option)
... [75 more lines]
```

- recent Warnings:

1. Competative widths aren't all zero like they're supposed to be
0: LRX=0

```
Calculate Cross Sections from Resonance Parameters (RECENT 2015-1)
=====
Retrieval Criteria----- MAT
File 2 Mimimum Cross Section- 1.0000E-10 (Standard Option)
Reactions with No Background- Output (Resonance Contribution)
... [267 more lines]
```

- fudge-4.0 Warnings:

1. Missing a channel with a particular angular momenta combination
resonances / resolved / MultiLevel_BreitWigner (Error # 0): missingResonanceChannel

WARNING: Missing a channel with angular momenta combination L = 0, J = 1.5 and S = 1.5 for "capture"

2. Potential scattering hasn't converted, you need more L's!
resonances / resolved (Error # 1): potentialScatteringNotConverged

WARNING: Potential scattering hasn't converged by L=0 at E=300000.0 eV, xs[0]/xs[0]=100.0% > 0.1%

3. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 2.38%

4. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 1: (z,n) (Error # 0): CS Sum.

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 5.17%

• fudge-4.0 Errors:

1. Calculated and tabulated Q values disagree.
reaction label 21: n[multiplicity:'2'] + Ar37 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -11851648.40015411 eV vs -1.1689e7 eV!

2. Calculated and tabulated Q values disagree.
reaction label 22: n + H1 + Cl37 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -10255428.39920044 eV vs -1.024e7 eV!

3. Calculated and tabulated Q values disagree.
reaction label 23: Ar39 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 6585339.19947052 eV vs 6.5997e6 eV!

4. Calculated and tabulated Q values disagree.
reaction label 24: n + He4 + S34 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -7221117.354957581 eV vs -7.209e6 eV!

5. Calculated and tabulated Q values disagree.
reaction label 25: He4[multiplicity:'2'] + Si31 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -8557497.78081131 eV vs -8.545e6 eV!

6. Calculated and tabulated Q values disagree.
reaction label 26: H1 + Cl38_s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -4147545.792785645 eV vs -4.8706e6 eV!

7. Calculated and tabulated Q values disagree.
reaction label 27: H2 + Cl37_s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -8030862.298271179 eV vs -7.7929e6 eV!

8. Calculated and tabulated Q values disagree.
reaction label 28: He4 + S35_s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -235231.7472000122 eV vs -2.222e5 eV!

- njoy2012 Warnings:

1. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

group...compute self-shielded group-averaged cross-sections (0): GROUPT/conver (0)

---message from conver---cannot do complete particle production for mt= 16
only mf4/mf5 provided

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

group...compute self-shielded group-averaged cross-sections (1): GROUPT/conver (0)

---message from conver---cannot do complete particle production for mt= 22
only mf4/mf5 provided

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

group...compute self-shielded group-averaged cross-sections (2): GROUPT/conver (0)

---message from conver---cannot do complete particle production for mt= 28
only mf4/mf5 provided

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

group...compute self-shielded group-averaged cross-sections (3): GROUPT/conver (0)

---message from conver---cannot do complete particle production for mt= 91
only mf4/mf5 provided

- acellst Warnings:

1. generic warning message
0: Warning

ACELST WARNING - More than one range for MF/MT 6 91
STOP ACEST Completed